

Progress Report No. 13

April 30, 2007

Factor 9 Home: A New Prairie Approach

1. Grand Opening.

The Grand Opening for the Factor 9 Home was held on Tuesday, April 17. The event was attended by a large number of dignitaries:

Saskatchewan Premier Lorne Calvert

Minister Eric Cline, Saskatchewan Industry and Resources

Laurier Schramm, President of the Saskatchewan Research Council

Craig Murray, Vice-President of Alternative Energy and Manufacturing

Division, SRC

Hon. Peter Prebble, Member of the Legislative Assembly and Legislative Secretary

Jacque Bevill of Canada Mortgage and Housing Corporation

The Holzkaemper Family (Rolf, Shannon, Paulina, and Rolf Jr.)

Product sponsors (Watercycles, Venmar, Rogne Construction)

In all, about 50 people attended.



Figure 1. Premier Calvert, the Holzkaemper family, and Laurier Schramm, President of SRC, and MC for the Grand Opening



Figure 2. Minister Eric Cline, the Holzkaemper Family, Premier Calvert and Laurier Schramm. The Premier had just presented the housewarming gift of a basket of Saskatchewan products to the new homeowners.



Figure 3. The Holzkaemper Children



Figure 4. L to R. Rob Dumont, SRC Project Manager, Premier Calvert, and Rolf Holzkaemper in the kitchen area of the house.
Window is on the south side.

The event was well covered by the media. Three TV stations (CBC, CTV, and Global) were present, as were the Regina Leader-Post Newspaper. A total of four follow-up interviews were done with 3 radio stations and a cable television station. Following the Grand Opening, the house was open to the public until April 22. An estimated total of 2,000 persons visited the house.

The Holzkaemper family then moved into the house on Earth Day, April 22.

Some of the displays in the house were as follows:



Figure 4. Display of the Watercycles Waste Water Heat Exchanger. L. to R. Harold Orr, one of the pioneers of low energy housing, Andre Cayer (Watercycles), Hon. Eric Cline, Minister of Industry and Resources.

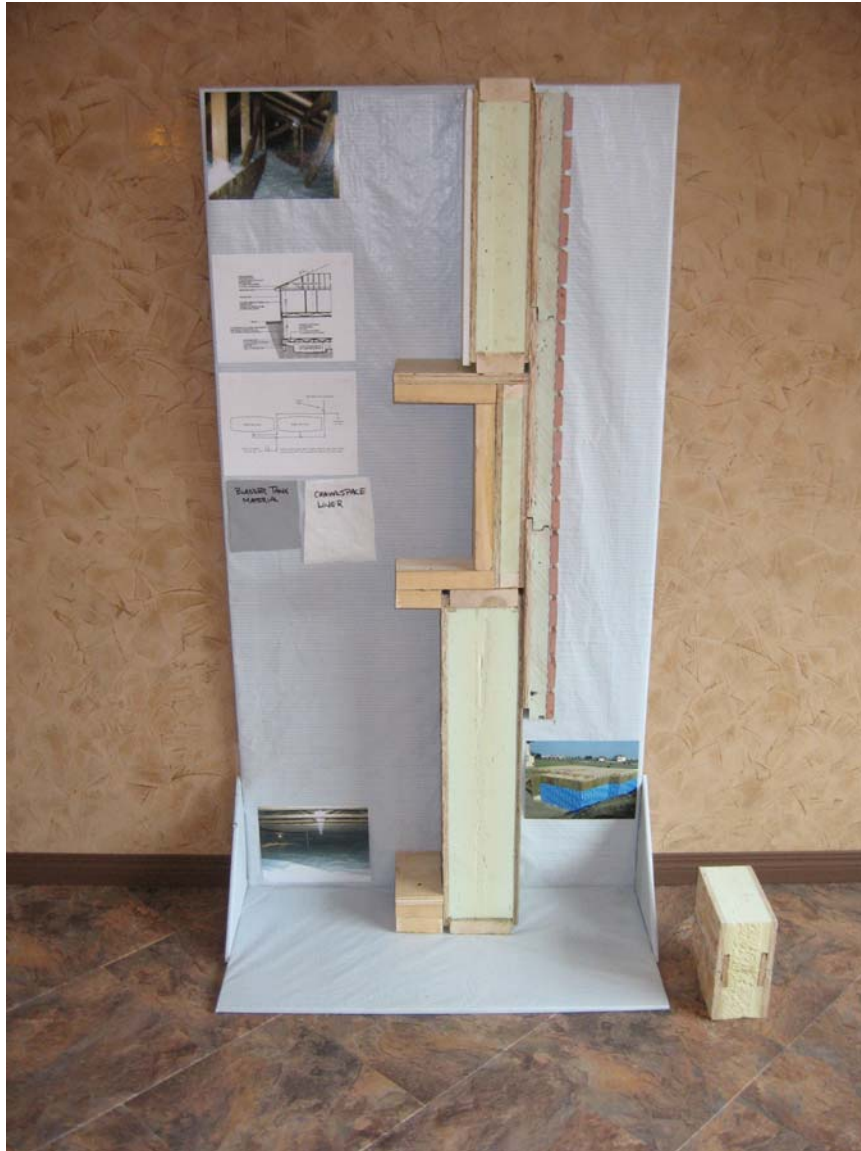


Figure 5. Cross section through the exterior wall.
Upper part: Structural Insulated Panel with polyurethane insulation and insulated brick siding (Pan-Brick), Middle Part: floor joist with insulating rim board and insulated brick siding, Lower part: Structural Insulated Panel for basement wall with pressure treated plywood on the exterior part.



Figure 6. Insulated recycled stainless steel water storage tank (2350 Litre) to store heated water from the active solar heating panels.



Figure 7. Fan coil with water to air heat exchanger and brushless DC fan motor on the left. Hot water is taken from the insulated storage tank and run through the fan coil to provide space heating for the house. In addition, the fan coil in the cooling season will take cool water from the pilings beneath the house to provide space cooling.



Figure 8. View of the north side of the house. The low water use landscaping has yet to be installed.



Figure 9. View from the south-east. The downspout in the south-east corner will direct roof runoff to the membrane water storage tanks beneath the crawl space.



Figure 10. Pump that moves water from the 19,000 litre membrane tanks beneath the crawl space to the toilets and the exterior water uses.



Figure 11. Signage inside the home

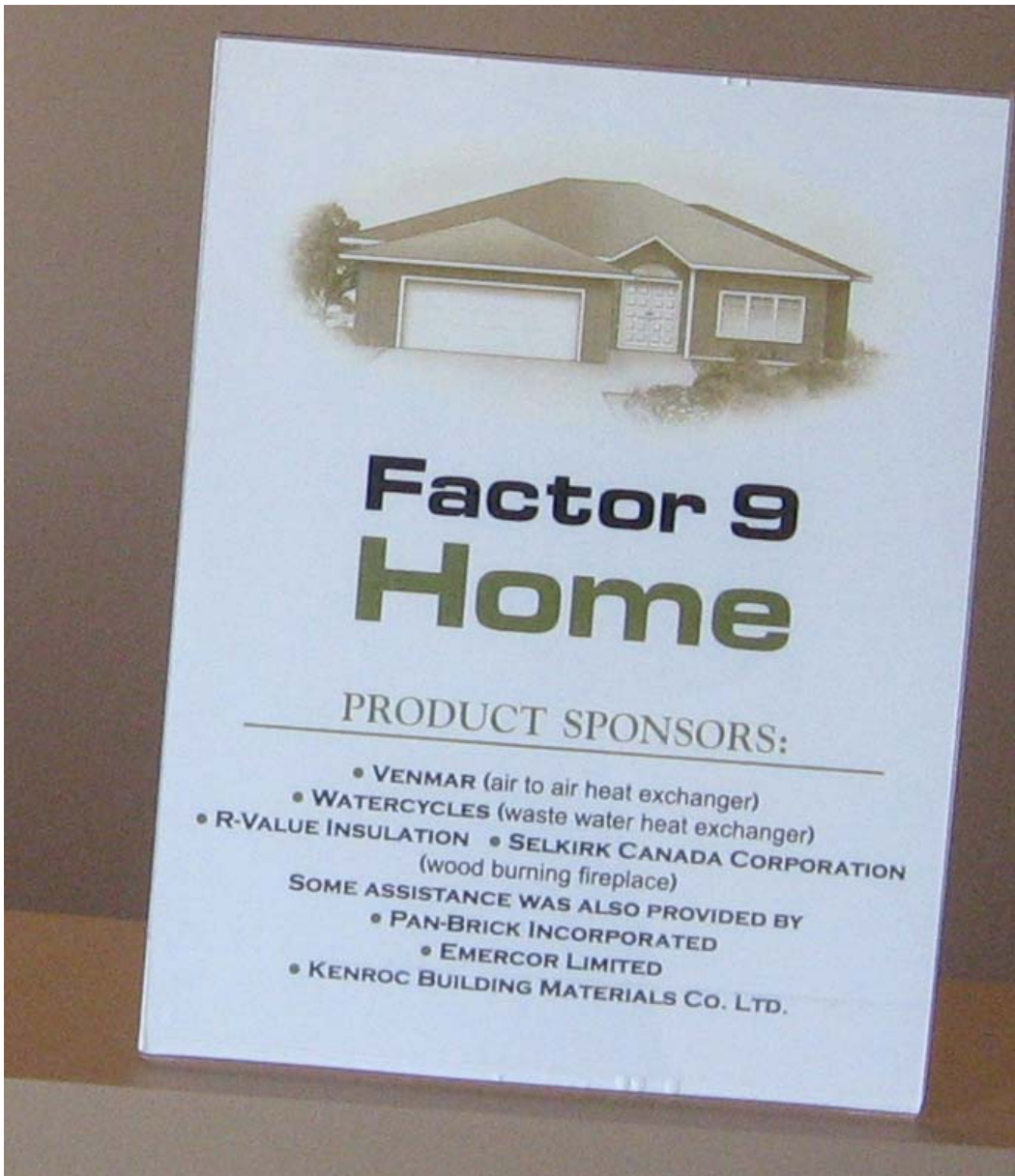


Figure 12. Product Sponsors

2. Data Logging Equipment

The National Instruments Data Logging equipment has been hooked up to the Internet, and hourly readings are now being gathered. A sample of the solar radiation data from the house over several days is shown in Figure 13. The data was completely transferred over the telephone company's DSL lines from the Factor 9 House in Regina to SRC's offices in Saskatoon.

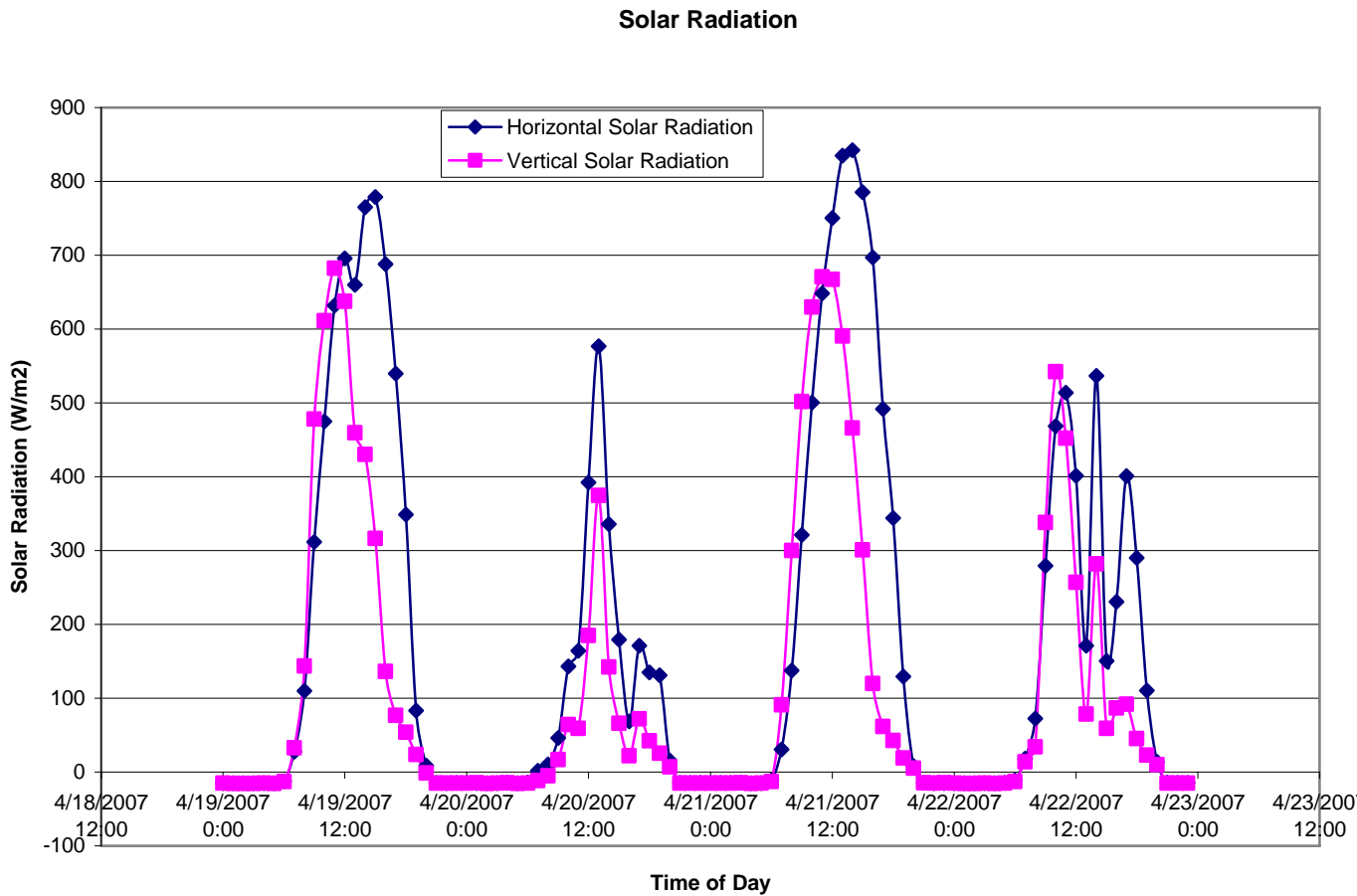


Figure 13. Measured Solar Radiation Data for the Factor 9 Home for the Horizontal and the Vertical Solar Radiation. April 19 to April 23, 2007. The vertical solar radiation peaks at an earlier time during the day than the horizontal radiation because the back of the house where the solar panels are located is oriented 26 degrees toward the east. At night, the solar radiation values are at a slightly negative value of about -15 W/m². Grounding problems with the sensor wires may be responsible for these negative values. Better grounding of the Li-Cor Pyranometers signal wires may help correct this negative data.

3. Remaining Work to complete house.

Some additional tasks remain for the house:

1. Connection of the roof downspouts to the membrane water storage tanks.
2. Cosmetic completion of the solar/window array on the south wall.
3. Exterior landscaping
4. Connection of additional data logging points on the house (about half a dozen.)

As of Earth Day (April 22, 2007), the Holzkaemper Family have moved into the house.

The Factor 9 Home: A New Prairie Approach could not have been developed without the strong support of its sponsors: Communities of Tomorrow, The Office of Energy Conservation of the Saskatchewan Government, Saskatchewan Research Council, Natural Resources Canada, and Canada Mortgage and Housing Corporation.

Partners include the University of Regina and the City of Regina.

Product sponsors include Panbrick Okamoto, Emercor, Watercycles, and Venmar.

Special thanks go to the Homeowners, Rolf and Shannon Holzkaemper.